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the peristome and a more complete and regular separation of its parts. The number of the teeth, so variable in the *Buxbaumiaceae* and also in the *Polytrichaceae* is already reduced to sixteen in our *Encalypta*, but each of these yet contains several layers of cells in thickness and several rows in width." The gradual reduction to the normal type takes place almost before our eyes in the genus *Encalypta*. There are forms of *E. longicolla* in which there are but three filaments on the face of each tooth, and there is often only a single layer of internal cell cavities. The reduction becomes even more apparent in the closely related *E. brevicolla*.

In *E. apophysata* the peristome is composed of sixteen long and narrow teeth connivent in the form of a cone. Upon the dorsal face of each of these teeth are two rows of reddish or orange plates separated by a median line along which the tooth is sometimes perforate. In thickness there are ordinarily three layers, two in contact with each other and a third inside these and separated from them by narrow elongated cell cavities. This layer rarely extends the whole length of the teeth and may be present near the base only. It is easy to recognize on the one hand the homologies of this peristome with that of *E. longicolla* and on the other with the normal Arthrodont peristome. The two outer layers of united plates correspond to the two layers of plates in the teeth and the third corresponds to the inner peristome.

In *E. procera* (Plate IV. Fig. 12,) there is an external peristome of sixteen narrowly linear, much elongated teeth, but which in number and arrangement of plates is typical of the Arthrodont-Diplolepid external peristome, i. e., two rows of outer plates and one of inner plates. Directly inside these outer teeth are sixteen inner teeth. These inner teeth are a little shorter than the outer and are formed of an outer papillose layer of plates and an inner more strongly thickened layer. These inner teeth are united below into a basal membrane about one-fourth the entire height of the inner peristome; this membrane is also united to the outer teeth by unabsorbed radial walls as in *E. apophysata*. Alternating with the teeth are sixteen narrow processes which Philibert states to be homologous with the keels of the inner peristome of the Diplolepideae.

Comparing this peristome of *E. procera* with the typical peristome of the Diplolepideae as illustrated and explained in previous articles there will be little difficulty in recognizing the corresponding and homologous parts. In the later development in *Mnium* and *Hypnum* the reduction in the number of elements in the teeth has been followed by a great increase in the breadth of the remaining elements.

AN INTERESTING MOSS BOOK.

A. J. Grout.

Mr. Wm. L. Sherwood, President of the New York Naturalists' Club, has in his library a copy of "Twenty Lessons on British Mosses," by Wm. Gardener, of Dundee, published by Longman, Brown, Green & Longmans, London, in 1847. It is an exceedingly interesting little volume and apparently rare as I have never before seen a copy, and do not remember ever having heard of the book.

The book is of interest chiefly for two reasons: First, it has the modern nature study idea in all its fullness. In the preface he states, "Were the youthful mind more generally directed to natural objects, and to the wonderful operations continually going on around us, and taught to seek entertainment and instruction in them, rather than in matters of a frivolous or vicious tendency, it is impossible to say to what extent this might be conducive to the future advancement and well being of human society." The chief unfavorable criticism seems to be that he preaches too directly as when he says in his introduction, "God made the little moss as well as the glowing flower and lofty tree, and has made nothing in vain." Although such sermons are frequent they are free from cant and do not seem as incongruous as they would in a modern book of nature study.

The second point of interest is that the book is illustrated with actual specimens instead of engravings, and these are inserted in an exquisite manner. One can still see the peristome with the naked eye on the capsule which is pasted in to illustrate the "peristome;" for the book has a short introductory lesson on structure illustrated with specimens. It is noticeable that instead of taking up twenty of the most common mosses and describing them he selects twenty illustrating pretty nearly all of the families of mosses as then recognized, and does not always take the most common or easily accessible, as when he uses *Polytrichum* (*Pogonatum*) *urnigerum* to illustrate the hair-caps, and *Weissia nigrita* (*Catoscopium nigritum*) to illustrate the Weissias.

When writing of mosses closely related to those illustrated he does not usually tell how to distinguish them, but merely mentions their occurrence and sometimes where he has collected them. This is not because of inability for he makes these distinctions in an admirable manner when writing of variety and species and illustrating these terms. The book (of about fifty pages 4x7 inches) was evidently well received for Mr. Sherwood's copy is of the third edition. This notice is written to call attention to one of the early attempts at nature study methods in the field of Bryology, which is well worth the consideration of any student of the development of educational ideas and ideals.

A NOTE.

Mr. J. F. Collins, of Brown University, calls my attention to a misstatement in my article on Vermont Mosses in the January BRYOLOGIST, where I state, page 7, that "*Heterocladium squarrosulum* has not before been reported from the eastern United States except Mt. Washington." It is reported from Massachusetts in Hitchcock's report of the Geology, Botany, etc., of Massachusetts (1833), page 640, and in Tuckerman & Frost's Amherst Catalogue (1875), and in Cobb's List of Plants near Amherst (1887). The last two are undoubtedly based on Frost's specimen collected in Brattleboro, Vt., in 1853, which specimen I have examined through the courtesy of Prof. L. R. Jones, of the University of Vermont. It is not *H. squarrosulum* at all but an entirely different moss, but on the margin is pencilled, "First collected in this country by me. C. C. F." The 1833 report still remains to be verified or disproved.

A. J. GROUT.